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RANGE IMPROVEMENT



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NOTES

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(AGRI - OGDEN)



STATEMENT OF PURPOSE

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This publication is printed primarily to inform professional range administrators of important range improvement and management developments and findings. These "Notes" may include extracts of published papers, unpublished preliminary reports of research work, unpublished reports on administrative studies, and personal observations or suggestions of other range administrators. No claim is made as to the accuracy or completeness of studies or conclusions drawn.

All who read these RANGE IMPROVEMENT NOTES are encouraged to submit material for publication, or suggestions for improving its usefulness. Full credit will be given for any material used.

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TALL WHEATGRASS FOUND TOPS FOR SALINE SOILS

By H. B. Peterson
Utah State University Dept. of Agronomy

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In every valley of the state are lands which are not cultivated because of high water tables or salinity, or both.

Tall wheatgrass (Agropyron elongatum) is the most promising of the forage plants to grow on saline soils. Of all the grasses we have tested it is the best adapted to the adverse conditions found on such lands. It is tolerant to salt and can withstand considerable drought and cold. It can also withstand some flooding - more than orchard, intermediate, or crested wheatgrass, but less than reed canary grass or tall fescue. It is a coarse, stemmy, non-lodging, late-maturing bunchgrass that grows from two to seven feet tall. It is fairly palatable when cut or grazed in the early stages of growth, but it should not be compared with such grasses as orchard or brome.

On the poorer lands it is often slow to become established after planting. The seeds are large and the plants usually produce an abundance of seed when allowed to mature. It can be grazed early in the season and then allowed to produce seed. When grown on the poorer land it often improves the physical condition of the soil.

Land to be planted should be relatively free of saltgrass and other weeds. It is usually desirable to plow the land and plant an annual for two seasons

before seeding a perennial. The growing of an annual allows for cultivation before and after the crop, thus reducing the amount of weeds and saltgrass. It is usually not advisable to clear cultivate the land for a season unless the salt content is too high to permit the growing of an annual. Where a crop is not grown, the salt will move to the surface and concentrate during the summer. The concentration may then be too great to establish the crop. For the more adverse conditions kochia may be the best possible annual. For a less saline condition sweet clover or hubam clover does as well. Barley can be grown if the land is not wet and the salt content is not over a conductivity of about twelve ($12 \text{ ECex}10^3$).

Planting should be done as early as possible in the spring or so late in the fall that the seeds will not germinate until the following spring. Late summer planting, after the hot season is past, is desirable when water is available for irrigation.

In Utah many successful plantings have been made in the bottom of furrows where moisture is more favorable, the salt concentration less, and the seedlings are protected. Where it is possible to irrigate in furrows the seedlings should be made on the edge of sloping furrows. The staff at the U. S. Salinity Laboratory has found the sloping furrows far superior to those of the regular shape.

The sloping furrows can be made by using a shoe. This is constructed by bolting or welding a wing on a furrowing shoe. Running the furrows from

east to west with the sloping side of the bed on the south side of the furrow bottom has some advantages over running north and south or placing the sloping side on the south exposure. The spacing of the rows is dependent on the equipment to be used and whether or not there is to be irrigation or cultivation. Even where no tillage operations are to be performed, 14-inch furrows are a minimum.

In many instances on uneven land it is possible to obtain water from a drain, a pond, or the regular irrigation system and sprinkle a seeding once or twice while establishing a stand. After it is established the crop will grow on the natural rainfall and moisture from a shallow water table.

Under the most adverse saline conditions we have been successful in planting tall wheat on sloping furrows, mulching lightly with manure, and sprinkle irrigating to establish the crop. Many of our farmers are using combinations of such methods to establish a grass crop on otherwise nearly worthless land. (Reprinted from: FARM AND HOME SCIENCE, June 1958).

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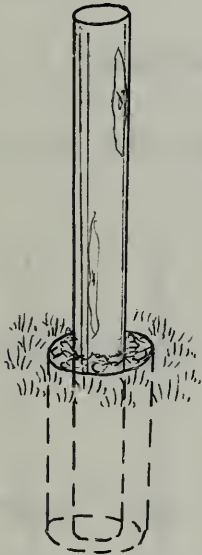
A soft heart and a hard head make an unbeatable combination

TIPS FOR BETTER FENCES

From
Minnesota Extension Bulletin 272

Setting the Posts

When the posts are set in the center of the hole, the soil can be tamped securely on all sides. These posts are firm. Posts set against the side of the hole are always loose since the soil cannot be properly tamped.



RIGHT WAY



WRONG WAY



THESE AREAS
DIFFICULT
TO TAMP

Stretching the Wire

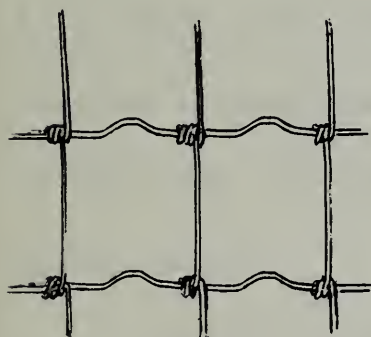
Wire is seldom damaged by hand stretching. When tractors are used for stretching, both barbed and woven wire are frequently damaged by pulling the wire too tight.

Between the warmest days of summer and the coldest days of winter a fence wire 40 rods long will contract several inches. When woven wire is

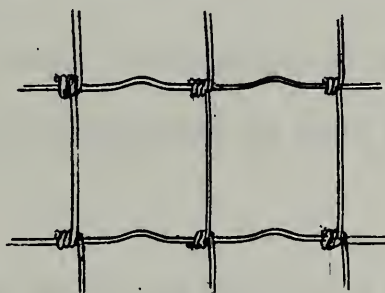
properly stretched the "hump" between the stays will absorb this contraction and will retain the tension as the wire expands again during the following summer. When the hump is lost through stretching too tightly, the wire will be permanently stretched, leaving a loose fence as the wire expands the following summer.

Unfortunately, barbed wire does not have a built-in gauge like the hump in woven wire to tell when it is tight. When barbed wire is stretched by hand it usually will not be too tight. Power stretching of barbed wire is not recommended.

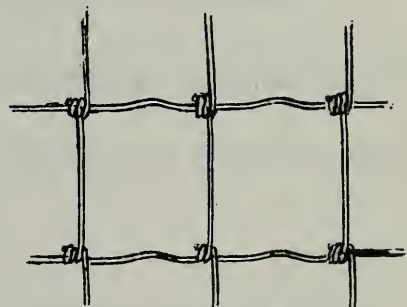
There is a tendency to stretch wire too tight in hilly country. You can partially avoid this by stretching short sections of the fence at a time.



BEFORE
STRETCHING



AFTER
PROPER STRETCHING



STRETCHED
TOO TIGHT

RANGE IMPROVEMENT BY RESEEDING ON
SOUTHERN IDAHO'S LOW-RAINFALL RANGE LANDS

Abstract of a Paper Presented at the Eleventh Annual Meeting
American Society of Range Management - January 30, 1958
By William L. Mathews, Bureau of Land Management

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The area we are concerned with has an annual precipitation ranging from approximately six inches to twelve inches per year. The topographic aspect ranges from broad open valleys to low foothills that merge into low mountain ranges. The elevations vary from approximately 2,700 feet to 8,000 feet above sea level.

Many years of overuse has resulted in the replacement of the desirable species with sagebrush, medusa rye, halogeton, and other undesirable plants. As a result of this depletion, drastic reductions in range use has been required in many grazing units. A vigorous program of range rehabilitation is underway. The program is financed by joint participation of Federal and private funds.

During the past fifteen years the Bureau of Land Management in Idaho has reseeded approximately 310,000 acres of sagebrush lands with good success. We have approximately four million acres remaining that are in need of treatment. In addition we have approximately one million acres of the salt desert shrub type and 300,000 acres of medusa rye range lands in need of treatment.

We have found that we can expect very good reseeding results on ranges occupied by sagebrush. Often the carrying capacity is increased more than ten times, resulting in a requirement of only two to three acres per cow month after seeding.

Rehabilitation of the salt desert shrub type and medusa rye infestations is not practical by the use of our present reseeding methods. Consequently, we have had to rely on natural rehabilitation of these areas after reducing or shifting range use to reseeded sagebrush lands.

Since most of the range lands requiring treatment are used on a spring-fall basis, and because of the arid condition, crested wheatgrass continues to be the primary species seeded. On the higher ranges with more favorable precipitation and where early spring feed is not the primary objective, intermediate wheatgrass is often used. Siberian wheatgrass, Whitmer wheatgrass, and Russian wildrye have been used only to a limited extent.

During the past ten years plowing with wheatland plows or the brushland plow has become somewhat of a standard method of sagebrush eradication. The better sites were contracted to commercial outfits generally using wheatland plows, and the tougher, rockier sites were plowed with our own equipment which included the brushland plow. The seed has been planted by commercial grain drills adapted to our needs where the seed bed was adequately firm to make it possible to sow the seed at the proper depth. The soil on freshly plowed sites is often so light and fluffy that it is almost

impossible to drill the seed at the proper depth. Such sites have been planted by broadcast equipment consisting generally of commercial grain drills with the discs removed or fertilizer spreaders. After dropping the seed onto the soil surface it is covered by use of a light drag or harrow. By use of these methods in the sagebrush zone, good results can almost always be expected.

With the choice sites seeded, it has been necessary to expand our program into the rockier areas and maintain costs at a reasonable level. This can be accomplished by the use of chemical sprays. A kill of better than 90 percent of the sagebrush can ordinarily be expected at a cost of less than that required for plowing. The chemical must be applied in our area during a period of about May 5 to 25 for effective results. We have seeded sprayed areas on a very limited basis by broadcasting the seed after the drying out of the spring moisture has caused the soil to crack. The seed works its way into the cracks and is covered by normal erosive processes during the summer. This last spring we planned this type of seeding on a sprayed area on a large scale. However, light showers during the drying-out process caused failure of the soil to set up properly. We, therefore, had to rely on the rangeland drill to put the seed into the ground. This is the first year that we have used this piece of equipment and we were amazed at the results. We drilled the seed with all of the dead brush standing. Not only did the drills withstand a tough beating from the brush, but they also did a

good job of mashing down the brush and they put the seed into the soil at a uniform desirable depth. We had very little breakage. However, the discs were somewhat defective in that the material was too soft, permitting them to wear out rapidly. This defect was merely one of material and not of design.

Burning to eradicate sagebrush is not used very often, primarily because most of the sites have such little grass in the brush that it's impossible to get an effective burn. Unstable soils sometimes make burning undesirable even if the fuel were adequate. Where burning is used to eradicate the brush, the seed is generally planted with drills.

Railing as a method of sagebrush eradication is seldom used because of poor results generally attained. This is due primarily to the fact that the small, young brush is not affected by the rail.

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Some people with open minds let the wrong stuff in.

The man who lives only for himself runs a mighty small business.

If two people in an organization always agree, one is unnecessary.

- - Henry Ford

